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Exploring the Web of Cognition

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From the Vice-Chancellor's Desk

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The escalation of the current Asian economic downturn has unearthed a mire of issues and taught us many lessons. In this increasingly interconnected and complex world we live in today, it is not easy to understand how *virtual* financial transactions conducted in one part of the world can induce *real* economic and social turmoil in another. It is not easy to explain how stock market sentiments can easily erode economic confidence built upon years of trust and diligence. It is also difficult to comprehend how so much profit is gained by a few, while so much misery is inflicted upon millions in nations that have buckled under pressures of foreign speculation.

It seems that such complexity will increasingly persist in our continual progress towards becoming a knowledge-based society. We can teach people new skills, however, the crucial questions remain: how can we empower students to solve problems that are novel, even to us? How can we understand the complexity of the human mind to help us solve problems better? How can we harness technology as our cognitive tool to resolve the myriad of contemporary challenges and issues facing us?

As a contemporary and forward looking university, we recognise that the understanding of the mechanisms of the mind, the nature of intelligence, coupled with knowledge concerning human factors in computers and technology, are among the major growth fields in the new millennium. This issue of UNIMAS *Today* reflects some of our thoughts and current activities in these areas. To mark our entry, a bold new undergraduate programme in Cognitive Sciences was introduced. The onus falls on the Faculty of Cognitive Sciences and Human Development and the Institute of Design and Ergonomics Application to spearhead our thrust in these areas. Their activities will not only affect the nature of our teaching and learning generally, but also influence, enlighten, and hopefully empower, those in the industry on the importance of the *Business of the Mind.*

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Constructivism
a rebel with a cause
for the NEXT millennium

Elaine Khoo Guat Lien & Fitri Suraya Mohamad

"Well I am 5 years old, that makes me older and smarter than you! So there," argued little Henry indignantly with his three-year-old sibling, bringing a little dispute to an end. The 5-year-old bore an expression of glee and triumph, a victor claiming his prize after winning a verbal sparring match. I watched amused and bemused by the spectacle. The actions of the child raised an interesting issue: what constitutes 'smartness' or intelligence? Would a 5-year-old have the maturity or insight to claim to have conquered this concept? How would this 'smartness' evolve as he matures? These age old issues of learning, remembering, and the ability to put theoretical and practical intelligence into good use are now brought to fore - thanks to the advent of the cognitive revolution.

Cognitive revolution? This was the futuristic jargon in the 1950s that seemed to denote a time of a distant future. But does it? The advent of technology sparked interest that the cognitive revolution could be the answer in explaining such issues as intelligence, particularly artificial intelligence. Experts conceived it to be 'the' tool to detail how the human mind works. It triggered hope that man would finally achieve a breakthrough in understanding the mechanisms that make us smart. The computer was also pivotal in breaking the behavoristic strictures that had so confined the study of human behaviour. Before, human behaviour was studied only in terms of overt, strictly controlled environments. Manipulating observable environmental stimuli in order to evoke particular overt responses from organisms was considered to be the epitome of science. Mysterious and seemingly fleeting mental processes, such as creativity, reasoning or remembering, were taboo, and prohibited from the scientific psychology enterprise.

Research and advancement in computer technology propelled a revolution, a paradigm shift, and released aspirers of empirical science from behavioristic orthodoxy into the present mentalistic fixation. Both computer and man were viewed equally as information processing systems - devices that process symbols (Newell and Simon, 1972). This scientific revolution laid the early foundations of Cognitive Sciences - the science of the mind (Bruer, 1994; Gardner, 1985). Cognitive Science is a discipline involved in explaining how the human mind works. It includes the study of mental processes such as learning, thinking, remembering, and problem solving.

Such focus on the cognitive abilities of a person also opened a new avenue for the applied science of learning and instruction (Bruer, 1994), opening doors for a relatively new pedagogy known as *constructivism*. Constructivism emphasises a learner's metacognitive skills and is gaining much popularity in challenging traditional assumptions regarding the teaching-learning process.

Smartness, as little Henry had attested to earlier, is conceived by the constructivists to be the result of meaningful knowledge construction. Stemming from the objectivist point of view about learning and the acquisition of knowledge, constructivism proclaims that the creation of knowledge occurs in a meaningful learning environment, which supports active learner participation. Learning takes place when a learner creates meaning out of a presentation of knowledge and ideas. The process depends on his or her ability to incorporate real world experience with a newly acquired knowledge or idea. When presented with a problem, learners need to comprehend and respond to it, and simultaneously be aware of their own thought processes entailed in the problem solving process. Therefore, the learning process is a personal endeavor for each learner; it is seen as a progressive effort that is self-monitored and builds upon prior knowledge to enrich the new one. Current research on the application of constructivism show an inclination towards the use of technology to enchance the learning

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process. In a Constructivist learning environment, a learner is expected to assume these qualities (Jonassen, 1997):

Active/Manipulative

The concept of *cognitive apprenticeship*, or learning by doing, engages learners in a learning process that encourages mindful processing of information. By practising what they learn, they acquire sophisticated skills and advanced knowledge about what they learn.

Intentional

A learning environment that clearly spells the intended learning aims will assist learners to become more focused on attaining the goals of the learning process. When learners are active and willing to learn to achieve a cognitive goal, they learn and think more (Scardamalia & Bereiter, 1994).

Complex

Engaging learners in solving ill-structured problems will stimulate them to engage in higher order thinking. Consequently, they will learn to challenge and respond to oversimplified views of the world.

Contextualised

By solving problems embedded within real world contexts, learners are exposed to knowledge and skills necessary in real life. Such contexts will provide the platform to practise problem solving in authentic daily situations.

Reflective

Articulating their ideas, activities and decisions helps learners to reflect on the processes and decisions they have made. These activities facilitate understanding and application of the knowledge in novel settings.

Conversational

Under normal circumstances, when faced with problems, we seek opinions and advice from various sources. Technology can be manipulated to create such knowledge-building communities (to gain multiple perspectives on an issue), facilitate communication and understanding between expert and novice participants, and allow for distributed support for the learning process.

Collaborative

Learners are naturally inclined to work in knowledge-building communities, to exploit each other's skills while providing social support, and to model and monitor contributions from each member of the community.

Constructive

By integrating new ideas with prior knowledge to make sense and meaning, or to reconcile a discrepancy, curiosity or puzzlement, learners will learn to identify meaningful relations and connections between various pieces of information, and construct their own comprehension for different phenomena.

As learners collaborate in the constructivist learning environment, they learn to negotiate meaning and understanding of the newly acquired ideas and knowledge with their peers. Their learning tasks range from simple to complex ill-structured problems, in scaffolded instruction, to enable them to acquire higher cognitive abilities and skills. Their active and goal-driven participation in the learning environment is a crucial element to ensure attainment of the learning objectives. Cognitive apprenticeship is also an integral part of the learning process - it stimulates learner identity in the environment, making them assume responsibility to work out plausible solutions to the problem space presented in the learning environment.

In the local scene

Several research initiatives investigating the feasibility of integrating constructivism into web-based courses offered at the university have been proposed. Such a bold move is quintessential in addressing the question: are our Malaysian students ready to embrace a constructivist learning environment in our classrooms? Traditional teaching and learning paradigms have concentrated on students' ability to know the "what" in a subject matter. Moreover, the role of learners as passive recipients of knowledge is still a common scene in our classrooms today. Perhaps the conventional pedagogy was sufficient to propel Malaysians to the status of a developing country in the past, but in this final decade of the 20th century, the inability to transfer and apply classroom-fed knowledge in facing real world challenges will debilitate them in the next millenium. Portrayals of students' superficial general thinking skills and an inability to communicate and generate creative ideas in authentic situations have been appalling. Ill-prepared to leap into the Information Technology age, where a solid grasp of both technology and innovative thinking skills are pertinent, these students will be handicapped by their own cognitive impairment. Expectations of today's entrepreneurial world require applicants to be more independent, innovative, critical, analytical, and able to assign creative problem solving skills to meet daily challenges. Hence, constructivism, with its emphasis on the "why" and "how" of knowledge formation is hoped to better prepare students of today to deal with those challenges.

A major paradigm shift would have to occur to infuse constructivism effectively into the educational setting in Malaysia. However, the change may transpire at a more accelerated pace to meet with the demands in Information Technology and the workplace for knowledge workers in the next century. These external motives will certainly catapult our education scene into the next millennium. Hence, smartness, as conjured by little Henry, may now take on a new meaning, and will lie in his prowess for meaningful knowledge construction after all.

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METACOGNITION
KNOW THYSELF

Pauline Bunce

Human beings, thankfully, are far more than mere *information crunching devices*, busily encoding data from their external environments. One of the most important things that makes humans *human* is our ability to "watch over ourselves". As learners, we are easily capable of monitoring and controlling our own learning processes.

While the term *metacognition* may have only been in use for the last twenty years, its central concepts date back to the ancient Greeks who continually exhorted their students to "Know Thyself".

Metacognition can be defined as "cognition about cognition". In other words, it refers to the self-knowledge an individual has about his/her own thinking and understanding, his/her awareness of fluctuating levels of understanding, and also self-knowledge of how well the individual is performing a task.

Students who have truly learned how to learn are "metacognitively aware". Such students are well on their way towards achieving the UNIMAS goal of *education for capability*, as they have fully accepted that their learning is entirely their responsibility.

School-learning experiences have led large numbers of students into believing that it is their teachers' responsibility to make them learn. Such is the learning legacy that far too many students bring with them into the first year of university studies.

The best news from the past two decades of metacognitive research is that teachers, at any level, can make a significant contribution to the development of their students' metacognitive repertoires. To enhance their students' levels of "self talk" during learning, teachers need to demystify the learning and thinking processes that their various disciplines follow. In first-year university classes, in particular, some lecture-time should be devoted to going over the learning requirements of a typical university assignment in the detailed manner outlined below.

All students "know" that they have to plan their work. But what does such planning involve in the post-school learning environment? Basically, it involves heightening the students' metacognitive awareness in four important areas.

Developing topic awareness

Initially, students need to have a really in-depth look at the topic that they have been assigned to. Can they separate the "topic" from the "task"? This is something they may not have learned in school. They will need to ask themselves what prior knowledge or experiences they might have had in the topic, and call upon these memories in the new situation. If they have absolutely no familiarity with the topic, they will need to ask themselves how they could gain some rudimentary acquaintance with it, away from the constraints of the present task.

Developing task awareness

University study, at least in the undergraduate years, is usually driven by a series of learning-tasks set by the lecturer or tutor. Students need to be able to analyse the requirements of a wide range of such tasks. What skills are demanded by the particular task-at-hand? How will it be assessed? What particular focus does it require? How far into the topic will they have to go to complete the task? How will they be called upon to demonstrate or present their learning? Students need to know what to look for and why. Once they start to gather information, they will need to be able to "grade" it with regard to its relative importance for their task.

Developing strategy awareness

Once students have decided just what is "important" and what is not, they will need to decide on their learning "tactics". Should they take notes? Draw up tables? Will they need contrasting points of view? A historical overview? What equipment and assistance will they need? How much time do they have? In what order should they proceed? Are they ready to begin?

Developing performance awareness

Students also need to keep themselves aware of their progress towards the achievement of their task. How close are they to completion? How well will they perform? Which aspects are they handling well? Which aspects prove difficult? How can they remedy the situation when their memory, concentration, understanding or motivation slips?

At the university, lecturers and instructors can help make explicit what is often implicit by modelling the "self talk" that typical academic tasks demand. By "thinking aloud" in front of their classes as they work their way through an actual or fictitious assignment in the classroom, lecturers can give their students some personal insights into the thinking processes involved in academic work. Such insights into the reflective cycle of academic endeavour can be of enormous value to students who may still be trapped in the "old school" ways of thinking.

Spice-up today's technology with a human touch!

Gloria Kong Siew Lang

The rapid advancement in economy has affected the development of today's technologies in many ways. The continual strife for higher productivity, performance, effectiveness, and efficiency has placed increasing demands for the optimisation of the existing technologies and systems. In our drive to optimise and develop more advanced automation, consideration of Human Factors/ Ergonomics is of paramount importance. Human Factors is a field of study that seeks to understand human capabilities and limitations in designing products and machines. It believes that a human operator's optimal work performance style and physical and mental capabilities should play a pivotal role in the system design. This marriage between technology and human ability is gaining much attention worldwide and has spurred efforts to address worker complaints concerning hostile and cumbersome technologies. Attention given to the design contributions in Human Factors/Ergonomics is crucial to ensure that the products/ technology developed will be user-centred, user-friendly and functionally sound. To design an effective user-centred system, a product designer or engineer needs to take into account the following three requirements:

Human psychological factors

A lack of consideration for the human psychological capabilities and limitations will inadvertently increase human errors that will not only hinder productivity but also result in serious occupational disorders, accidents and disasters. This scenario is especially prominent in institutions where larger and more complex machine systems are used.

Aspects of the human physique

A well thought-out user interface designed to suit the human operator's physical makeup can ensure user acceptance and facilitate effective operations. The design and evaluation of hardware and software interfaces (e.g. in the application of multimedia and Virtual Reality in workplaces) including specifications for physical workstations, control consoles and work processes for advanced manufacturing, control and production system need to be revamped to decrease user fatigue.

Human cognitive issues

A mismatch between the user's human information processing capacity and system design can lead to excessive stress and fatigue in the human operator. Consideration of the human mental capability is crucial in operating a machine. The human operator is required to troubleshoot problems, analyse alternative solutions, and to make decisions, capabilities which all involve higher levels of cognitive processes. Therefore from its very conception, a system should be designed to ease the operations of these cognitive processes to ensure its realignment with the natural characteristics of the human capability. The establishment of the Faculty of Cognitive Sciences and Human Development and the Institute of Design and Ergonomics Application in UNIMAS is hoped to address such Human Factors issues to yield answers in the development of user friendly technological products to cater to the growing market demands.

Surfing the tides of Age

Syed Hassan Almashoor

The concept of aging interests many. A multitude of physical and mental impairments accompanies humans as they walk through the passage of time. Nevertheless there are people who seem to cope well with the process. Perhaps their coping strategies are similar to the ones that support them when facing the demands of daily pressures.

Cognitive abilities seem to have a strong association with age. A number of people over 60 years of age suffer from memory impairments and intellectual deterioration. Also known as *senile dementia*, such deterioration is best investigated through the neuroradiological approach. Cerebral atrophy can be detected from this approach by noting the enlarged ventricles, the narrowing of the gyri and the widening of the sulci. Histologically, one can then observe senile plaques, neurofibrillary tangles and amyloid bodies. Such neuropsychometric assessment can reveal deterioration in cognitive function over a period of time. Electroencephalography (EEG) can also be employed to record voltage changes in the cerebrum. This technique greatly assists in keeping track of the physiological functioning of the brain.

A study by Forstal (1996) revealed the efficacy of using EEG as an investigative tool in diagnosing patients. He studied the longitudinal differences in cognitive capabilities, EEG wave patterns and morphological brain structures between a group of healthy elderly and a group of patients with Alzheimer's disease. Significant reduction in cognitive abilities accompanied by EEG and morphological changes emerged from the patients suffering from Alzheimer's disease but not from the healthy elderly group. The application of EEG is hence a powerful tool to aid physicians in arriving at the correct diagnosis.

The Faculty of Medicine and Health Sciences operates a sleep study clinic, where sleep EEG or polysomnograph recordings of patients with neurological disorders are performed. These studies reflect investigative procedures to assist physicians and surgeons in better managing their patients. This collaboration in therapeutic interventions among staff of various disciplines is to ensure a higher quality of patient care encompassing both their physical disabilities and mental functions. A comprehensive care as such will enable patients to have a better quality of life despite the illnesses that they have.

Cognitive disabilities in the setting of a dementing illness are very troublesome and unpleasant to the patients. Similarly the carers of these patients also suffer, to some extent when looking after these elderly individuals. Hopefully with more insights into the mechanisms of these cognitive disabilities and the application of more neurophysiological investigative techniques, one will be one step closer to understanding the workings of the human mind and body.

Deeper Learning by DESIGN

Pauline Bunce

If we are to become genuinely concerned about the quality of our students' learning, it becomes particularly important to know what we mean by "quality learning". While there is no shortage of definitions in the literature, most of them citing concepts such as the "enquiring mind", such noble, high-sounding educational aims too often fail to translate into the prosaic reality of the laboratory and the lecture hall.

What kind of learners do we want our students to become? How can they be assisted in developing the desired approaches to learning?

One overly simplistic, but nonetheless useful, learning dichotomy is the distinction often made between *shallow* and *deep* approaches to learning. Students adopting a *shallow* approach will emphasise the reproduction, even memorisation, of parcels of factual material. They will be very concerned about "knowing" and acquiring the mountains of facts that their courses appear to demand of them.

Students practising a *deep* approach to learning, on the other hand, will emphasise the need to "make sense" of whatever it is that they are learning. They will seek to be able to explain events, rather than to list and repeat what they have been told. A deep learner may occasionally express wonderment, or even admits that an idea has challenged the ways in which they had previously perceived their world.

Such black-and-white distinctions do not, however, enable us to neatly classify our students into two groups. Nothing in human behaviour is ever quite that simple. In reality, the same individual can take a shallow approach to the learning of one set of material and a deep approach to the learning of something else. As learners, we continually move up and down this learning continuum, depending on the *learning demands* that are made upon us.

B. S. Bloom et al. (1956) classified these various learning demands into a Taxonomy, the cognitive domain of which is shown in Figure One.

Learning Level	Typical tasks
1. Knowledge	Students are asked to define, label, name, select, identify or describe things.
2. Comprehension	Students are asked to explain, give examples, summarise, convert or estimate things.
3. Application	Students are asked to modify, relate, predict, solve or demonstrate things.
4. Analysis	Students are asked to subdivide, select, differentiate, discriminate, infer or to diagram things.
5. Synthesis	Students are asked to combine, reconstruct, compose, propose, revise; create or design things.
6. Evaluation	Students are asked to appraise, criticise, justify, conclude, judge or assess the merits of things.

Figure One: Bloom's Taxonomy of Educational Objectives (1956)

The higher levels of the Taxonomy assume the prior achievement of those before them. To be able to modify a piece of equipment (Level 3), for example, a student will need to know its original purpose (Level 1) and be able to explain its current mode of operation (Level 2). To be able to formally propose a change in government policy (Level 5), a politics student will need to have analysed the present policy (Level 4) and know its various applications and ramifications (Levels 2 and 3) for the different sub-sections of the community (Level 1).

To encourage the deepest possible learning, university course planners need to design assessment tasks, which will tap the highest levels on this chart. Too many piecemeal, low-level academic tasks will only encourage piecemeal, low-level learning. While there may always be a place for the classroom "spot test" and "comprehension questions", the weight of university assessment should be placed on the higher-order demands of analysis, synthesis and critical appraisal.

The very design of university courses can have an indelible effect on the type of learning that it will encourage. Figures Two and Three illustrate this learning-by-design effect.

- High class-contact hours.
- Heavy and imbalanced workload.
- Infrequent or negative-sounding feedback.
- An excessive amount of course material.
- A lack of opportunity to pursue any topic in depth.
- A lack of choice in topics or the method of study.
- An assessment scheme that rewards lower-level reproductive thinking.

Figure Two: Course characteristics, which encourages a surface approach to learning (Gibbs, 1992)

- Relatively low contact hours.
- A balanced, well-planned workload.
- Regular feedback, couched in positive terms.
- Some freedom of choice in learning methods and content.
- Teaching that promotes activity, interaction and motivation.
- Teaching that emphasises integrating concepts rather than separated facts.
- An assessment scheme that rewards analysis, synthesis and critical appraisal.

Figure Three: Course characteristics which encourages a deep approach to learning (Gibbs, 1992)

Basically, like so many other aspects of human endeavour, "we reap what we sow". If we are concerned about the quality of our students' learning, then we need to closely examine the learning priorities that we are setting for them.

If a course is designed around the need to "cover content" rather than to examine concepts, then its students' learning priorities will follow suit. Careful, higher-order restructuring of courses and their assessment patterns will encourage the deeper thinking that *education for capability* demands.

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HCI COGNITION & DESIGN of usable COMPUTERS

Halimahtun Mohd Khalid

The diversity and rapid growth of the discipline Human-Computer Interaction (HCI) in recent years is astounding. The term *human-computer interaction* was adopted in the mid-1980s to describe this new field of study. As a discipline, it is concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them (ACM SIGCH, 1992). The widespread introduction and increasing use of information technology (IT) in the workplace, home and in leisure has immediate effects on people and organisations, highlighting the need for even more extensive efforts in HCI.

In the earliest days of computers, very few people interacted with computers, and those who did generally were technical specialists. Now, HCI is a major area of research in computer science, human factors, engineering psychology, ergonomics, and closely related disciplines.

HCI design poses a rich challenge partly because of the rapid change in the underlying technology, partly because of inherent conflicts and trade-offs among design goals, and partly because of the many different components that make up HCI. New improved hardware and software technologies are opening up new possibilities for HCI. Special devices enable users to grab and move virtual objects in a virtual space, or even to move through that space in virtual reality. A recent seminar, workshop and exhibition on Virtual Reality, VR'98, 14-15 April 1998, organised by UNIMAS, showcased some of the important developments in virtual reality as a function of high computing technology. Another strand of development that HCI has much impact is design of multimedia interfaces. Multimedia applications, in which sound, dynamic and static graphics, video and text are intermingled, are now common. The development of the Multimedia Super Corridor (MSC) in Malaysia is testimony of the importance given to IT in general. It is estimated that IT will be the most significant production sector in the near future, perhaps surpassing any other industrial sector.

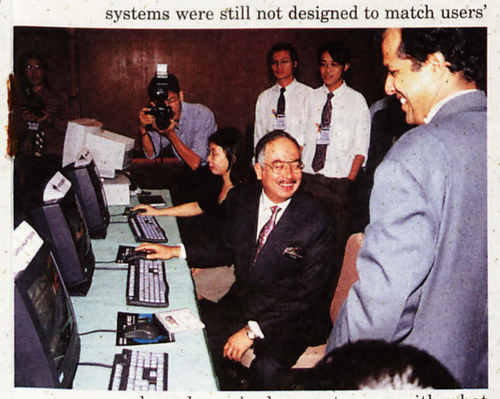
Mapping HCI to Cognitive Science

The intense and constantly increasing research activity within HCI reflects the growing importance of the field. It is sometimes suggested that HCI should be based on a cognitive science approach. A popular version of this view suggests that HCI consists of the application of principles and knowledge derived from the basic science of cognition. A more adequate picture of the discipline depicts HCI as one of the several approaches to increasing our knowledge about human cognition, namely the approach that studies human cognitive performance in complex, man-made environments. This conception of HCI reflects the increasingly influential view that cognitive performance and cognitive capacities cannot in general be studied and modelled independently of the particular kinds of task environment in which they manifest themselves. As such, academic researchers focused on the capabilities and limitations of human users, understanding the 'people side' of the interaction with computer systems. This primarily meant understanding people's psychological processes when interacting with computers. As the field of HCI began to develop, other issues such as training, work practices, organisational and health hazard issues became important factors contributing to the success or failure of using computer systems.

What HCI is about may be summarised as: First, HCI is both a science and an engineering discipline. As a science it is committed to discovering and establishing general principles and models governing human cognitive performance in man-made environments. As an engineering enterprise, it aims at producing and exploiting principles for the design of systems which match the needs and capacities of human users. Second, the overall goals of the discipline are certainly not focused on computer use per se, although the name "Human-Computer Interaction" may suggest otherwise, but they are inherently oriented towards the use of systems in work environments. Third, HCI is concerned with real users using real systems in real work settings; therefore transferring results to the real world from laboratory experiments must be done with great caution.

Design of usable systems

It cannot be denied that many computing systems have been designed with very poor interfaces. It is possible to design good interfaces whose controls have relatively obvious operations and effects, and that also provide useful and immediate feedback. Such systems result from a good knowledge of HCI. The goals of HCI, then, are to produce usable and safe systems as well as functional systems. That is, computers should be designed to meet the needs and capabilities of the people for whom they are intended. Computer companies became aware that by improving the physical aspects of the user interface they would stand a better chance of being successful in the market place. Exploiting this new dimension, systems became to be called 'user-friendly'. Many used the term simply as a marketing ploy, paying lip service to the real issues surrounding HCI. Most systems were still not designed to match users' needs and required users to cope with what seemed more like 'user-hostile' interfaces.



Usability, a key concept in HCI, is about making systems easy to learn and easy to use. In order to produce computer systems with good usability, HCI specialists strive to:

- understand the factors (e.g. psychological, ergonomics, organisational and social factors) that determine how people operate and make use of computer technology effectively
- translate that understanding into the development of tools and techniques to help designers ensure that computer systems are suitable for the activities for which people will use them in order to achieve efficient, effective, and safe interaction both in terms of individual human-computer interaction and group interactions.

Good HCI depends upon HCI designers and design teams having a wide range of knowledge about both humans and technology, and about how they relate to each other. For this reason, HCI is multi-disciplinary. These requirements bring two important challenges to HCI designers: how to keep abreast of changes in technology, and how to ensure that their designs offer good HCI as well as harnessing the potential functionality of the new technology. The training of HCI professionals, then, becomes an important agenda in IT education, in addition to research into HCI and related issues.

Studying HCI

Research on HCI is needed to increase our understanding of the technology and its effects, to discover what impact computers (or uses of computers) have on people's productivity, job satisfaction, communication with other people, and the general quality of their lives. Another important reason for studying HCI is to increase its usefulness and usability, and perhaps more importantly, to help increase the chances that it will be put to uses that are constructive and humane. The greatest challenge in HCI research is to determine the leverage where it will be useful in advancing national development.

HCI is realising a stronger presence in IT education. Elsewhere in the world, HCI is generally taught within Human Factors Engineering and Industrial Engineering curriculum at the undergraduate level. These courses may be coupled with offerings in cognitive psychology and computer science. This approach to HCI education is consistent with the ACM SIGCHI Curricula for Human Computer Interaction, which stresses the importance of course offerings in HCI, reflecting the interdisciplinary flavour of the HCI profession. However, HCI has yet to have a formidable presence in postgraduate-level programmes.

At UNIMAS, HCI is offered in two undergraduate programmes: the HCI programme of the Faculty of Information Technology (FIT), and the Cognitive Science programme of the Faculty of Cognitive Science and Human Development (FCSHD). Components of HCI are also being taught in the Educational Technology module offered by the Centre for Applied Learning and Multimedia (CALM). The main objectives of these courses are: to provide a good understanding of relevant principles in computing and psychology and their application to HCI design; and to ensure that students gain knowledge and experience of methods for the design and evaluation of interactive systems. In the near future, HCI, especially cognitive ergonomics, will form part of the Ergonomics Masters programme to be offered by the Institute of Design and Ergonomics Application (IDEA).

HCI research is a growing niche in UNIMAS. The main areas of research are: interactive systems design, task analysis, evaluation and design of multimedia systems and multi-user systems. An ongoing research on usability evaluation of multimedia interfaces examines instructional design issues in multimedia production. This project, funded by UNIMAS, is a joint activity between IDEA and CALM. Development of cultural user interfaces and the Virtual Campus project are undertaken by FIT, while simulation studies of complex tasks are carried out at FCSHD. The research programmes of IDEA which focus primarily on usability studies, human-machine interaction and design studies will bring about greater efforts in HCI-related research. The UNIMAS Reality Centre at the

Technology Park Malaysia, Bukit Jalil, will spearhead research in virtual reality, especially in the product design and manufacturing application domains.

Visions of HCI

Although there are many questions that cannot be answered now regarding the impact of IT on the quality of life in the next millennium, continuous involvement in HCI research will help to provide some answers. Research on design of smart products, interactive media, computer-mediated communication tools and environments are some of the future concerns that warrant investigation. The MSC project, in particular, provides a formidable challenge for HCI. Investments in HCI research will help to ensure that Malaysian IT products are designed to be productive, safe and satisfying to use; they are intuitive to use even for the novice or inexperienced; and they can be designed easily without the aid of complex manuals. To achieve this level of competence, the Malaysian industry, however, will need to employ experts in HCI and Ergonomics who can play a consequential role in steering the IT product development in useful directions.

The Business Of The Mind

The Region's First

Established in 1993, UNIMAS' Faculty of Cognitive Sciences and Human Development is the first of its kind in the South East Asian region. The Faculty focuses its academic concerns on understanding how the human mind receives, creates, analyses, stores, memorises, retrieves and interprets information. Its research covers issues on how the capabilities of the human mind could be emulated by technology. Another area of interest encompasses the performance and productivity of workers in organisations, which is being researched principally from the cognitive framework. The effectiveness of our ability to interpret knowledge, the soundness on how we conduct our practices and arrive at conclusions, depend greatly on how successful we are in understanding the way the mind behaves and operates. While it is true that in the past, issues concerning worker performance and productivity have been approached mainly from the behavioural framework, a shift to use the cognitive paradigm is on the increase. Of late, there is a powerful drive to create intelligent machines to emulate the human mind and to produce technological products that encompass human characteristics and preferences.

Currently, research on the capabilities of the human mind has also exceeded disciplines other than Psychology. This demonstrates the growing interest from other disciplines, and their findings have helped enlightened us on the complexity of the human mind.

Niche Areas in Research

Research activities in the Faculty are directed towards expanding knowledge in the areas of Cognition and Learning; Cognition and Work Behaviour; Cognition and Human Development; and Cognition and Human Machine Interaction.

By 1997, the Faculty has been awarded grants totalling RM 130,000 for five projects, four of which have been completed.

Cognition and Learning

Understanding how learning occurs in the human mind is an important enterprise. By adopting a multidisciplinary approach encompassing disciplines such as Anthropology, Neuroscience, Linguistics, Artificial Intelligence, and Philosophy, the Faculty hopes to explicate the dynamics of learning in a more comprehensive manner. Some of the Faculty's research include investigating issues in learning, encoding, transfer and assessment of memory, thought processes of novices and experts, use of hypermedia and multimedia in learning and computer-based distance learning.

Cognition and Work Behaviour

In most organisations, worker performance and productivity is the central concern. Findings often indicate a positive correlation between work behaviour and the cognitive assumptions workers hold while on tasks. This accentuates the need for continual research in explicating how the cognitive paradigm can be used to enhance worker performance and productivity.

Cognition and Human Development

Research in this area traces the development of human cognitive capability from infancy to old age. Although Piaget's work has been influential, questions on its applications still remain. The Faculty's research addresses the different environmental, cultural, psychological and physiological issues pertaining to the realm of cognitive development . This effort is hoped to reveal findings and interpretations on the dynamics of cognitive development. Some research interests in this area include children's cognitive processes in quantitative thinking, children's cognitive behaviour and value formation, and differences in child cognitive dynamics.

Cognition and Human Machine Interaction

The twofold research in this area include the development of intelligent machines that are able to emulate the dynamics of human intelligence and to capture the essence of human values and preferences. The Faculty, aligned with this shift in philosophical paradigm, incorporates a pro-humanistic perspective in the relationship between human and technology. Research direction in this area is grounded on human cognitive dynamics, machine capability and technological products. Some concurrent research interest include investigating human factors in the design of machines and products, developing intelligent auto learning systems and software programmes to facilitate learning, training, teaching and management activities.

Teaching and learning

Undergraduate Programmes

The Faculty initially began with two Programmes, BSc in TESL and BSc in Human Resource Development in 1994. In May 1996, the BSc in Cognitive Science was offered. By 1997, the Faculty has 231 undergraduates enrolled in the programme. Besides providing students with a broad knowledge base, the undergraduate programmes are technology-driven, futuristic in focus, student centred, have wide marketability and are quality monitored. Work in providing instruction for various courses via the Internet has also started and will be implemented in the academic semester of 1998. This is necessary to increase co-ordinated work among instructors of various courses and to enable student access to relevant information pertaining to each course. Such a move will serve as a prelude to an interactive asynchronous learning mode, using the "Online Education System", which the University is currently developing.

Post Graduate Programmes - Contract Education

In May 1996, an intensive full time one-year degree programme leading to the MSc in Human Resource Development is offered. The programme combines Coursework and Dissertation and tailors to the needs of students who were qualified working staff sponsored fully by Institute Aminuddin Baki of the Ministry of Education Malaysia. These students made the Faculty proud by being the first batch of students to receive degrees at the UNIMAS inaugural convocation ceremony in August 1997. Currently, the Faculty has two cohorts taking this programme.

Another contract education programme at the Masters level followed suit in 1997. Instituted between the Faculty and the Sarawak State Government through its subsidiary agency, Centre for Modern Management, the focus of the study in this programme is on Action Learning and Action Research. This programme can be completed in one year and comprises of Coursework and Dissertation. Students will also spend two weeks at the Gibaran Research Institute in Adelaide, Australia. Twenty-two qualified officers of the Sarawak State Government are now following the programme and will be expected to complete their studies by end of 1998.

Conferences

1994 - the Faculty organised its first International Conference in Human Resource Management (HRM). The theme of the conference was "HRM in A Multicultural Environment: Towards Realising Regional Co-operation for Economic Development in the ASEAN Region". The conference was jointly organised with the Institute of Management in Sarawak (MASA), and the objective was to examine human resource issues across the ASEAN region.

1998 - the Faculty is in the process of organising a national conference in Cognitive Science and launching a new Cognitive Science Society of Malaysia (COSMA) this September. The theme of the conference will be "Cognitive Science and Development in the 21st Century: Overview and Implications". It will discuss various issues pertaining to the operations of the human mind and its various applications in fields such as Education, Medicine, Computer Science, and Ergonomics.

Quality Assurance

UNIMAS places special emphasis on the importance of maintaining quality in all its activities. In line with this, the Faculty has appointed six international scholars as its Advisory Panel to assess and suggest further improvements on the academic activities of the Faculty.

Future Plans: Incorporating Part Time Study Programmes

The Faculty plans to offer part-time postgraduate studies using the coursework and dissertation model. A proposal for such studies has been submitted to the University Senate for further discussion and approval. Once approved, the programme will commence later this year.

Let's Talk About COGNITION with Razali Arof

Question: What is Cognition and why focus on it?

Say you witnessed two cars collide. How does your mind make sense of this event? Many mental operations are involved here ranging from recognition and registration to retrievability and interpretability before you conclude to say that it is a car accident. Thus Cognition is the operation of the mind to make sense of surrounding events.

Cognition forms the thrust of the Faculty of Cognitive Sciences and Human Development's research, teaching and consultancy activities. Although cognition is of extreme importance in accomplishing our daily activities, many of us overlook the intricate mental processes implicated for emphasis on the desired behavioural outcome. We need to strike a balance in our emphasis on overt behaviour and convert mental activities in order to comprehend how operations of the mind can assist us to arrive at better decisions and interpretations.

For example, in teaching or disseminating ideas to children or adults, an instructor has to be sensitive to the learners' cognitive structures and capabilities. Such emphasis will incur extra work and patience on the instructor, but worthwhile if learning is to take place. It has to be done if we want the ideas imparted to become meaningful.

The pertinence of cognition lies not only in the act of human dissemination of information but has also been extended to machines and technological products. There is now a strong move to make machines "intelligent", placing recourse on the operational dynamics of the human mind, in addition to producing technological products that integrates human values and preferences. The emergence of disciplines such as Artificial Intelligence, Neural Networks and Human Machine Interaction are testimonies of this.

This is not an easy enterprise because the study of the human mind predates beyond the time of Plato, and until today, we are still grappling with similar issues. Thus research is required because the findings, however miniscule, is highly rewarding.

Question: How does the Faculty undertake the study of the above issues?

We approach it from three perspectives: theoretical/ fundamental development; their applications, and lastly an integrated multidisciplinary research framework. The first approach pushes the Faculty to study basic issues of cognition, like memory and retention; acquisition and retrievability; and conceptualisation and interpretation. The second approach will encourage research on applications of theories to increase the intelligent behaviour of people, machines and in the development of more human-sensitive technological products. The third strategy is to study the two areas above from the perspectives of diverse disciplines and adopt an integrated approach at the same time. The disciplines relevant for this purpose include cognitive neuroscience, artificial intelligence, cognitive psychology, linguistics, philosophy, neural network, and anthropology. This framework is crucial to increase validity, depth, comprehensiveness as well as reliability of the findings.

Question: How does the Faculty propose to realise this mission?

The Faculty's academic staff are currently investigating the various areas of Cognition and its applications specially in areas ranging from Human Machine Interaction, Psychology, Computer Science to Education and Human Development. Currently, the Faculty offers an undergraduate programme in Cognitive Science and are opening opportunities to outstanding graduates to join the Faculty. Concurrently, there are several postgraduate students conducting research on the relationships of cognition to learning and human productivity. The Faculty also recruits foreign lecturers in the many areas of the Cognitive Sciences.

In addition, we also have collaborative research with other Universities, both foreign and local, and also with related industries. This is good because we are able to exchange ideas, and the industries, at the same time, give us useful ideas and insights on applications, market demands and the availability of research grants. Given a few more years, I am confident the Faculty will be ready to make a meaningful impact upon the area of cognition and its applications through the discipline of Cognitive Science.

Question: What are some of the basic issues confronting Cognition and Cognitive Science?

A fundamental issue is whether Cognitive Science should exist as a separate entity or remain in its existing multidisciplinary framework. Resolvement to this may preferably be the former but obviously with two challenging implications. First, what and how much of subject matter should constitute the discipline of Cognitive Science. Is it merely a collection of what's available and relevant from related existing disciplines or something more and beyond? The second relates to the enhancement of knowledge. What or how will the research methodology be like?

Both issues are crucial if Cognitive Science is to exist as a separate discipline on its own entity. They are certainly complex issues but definitely not insurmountable. The alternative to this choice is, of course, to remain multidisciplinary and be subject to the epistemological assumption and confusion of associated disciplines.

Question: What are your hopes and expectations concerning the prospects for study in Cognition in Malaysia?

In this part of Asia, ours is the only Faculty that solely focuses on human cognitive capability and its applications. Therefore the discipline of Cognitive Science, is relatively new in this region. However, being novel perhaps connote doubts and negativeness to some. We view it as an opportunity, and if handled well, will reap fantastic rewards. If we use the SWOT analysis, chances are, the Faculty will excel in the study in this area in the not too distant future. Being new and unique gives the Faculty the competitive edge. We hope to expand the knowledge and be instrumental in creating the market and demand for it. The academic staff is very committed in their belief and work. Support from UNIMAS management is very positive and to date Cognitive Science is fast getting recognition and support. I can say, with confidence, that the Faculty will achieve its goal to become a regional centre for the study of Cognition and its applications through Cognitive Science.

ASEAN ERGONOMICS

care for the future?

6-8 November, 1997

The Renaissance Hotel,
Kuala Lumpur, Selangor Darul Ehsan

The ASEAN Ergonomics '97 - 5th SEAES Conference was jointly organized by SEAES, the International Ergonomics Association and Universiti Malaysia Sarawak. This three day triennial meeting of Ergonomists and Human Factors professionals is an attempt to support ergonomics. With the theme 'Human Factors Vision - Care for the Future', the scenario for considering in the near future the potential and relevance of ergonomics in various applications was set. This theme was considered especially fitting with the growing need to design, develop, implement and evaluate human-machine systems that are safe, productive, and satisfying to use (Khalid, 1997). 122 papers were delivered and were tracked onto these sub-themes; (1) Care for the worker, (2) Care for the people, (3) Care for the new technology, and; (4) Care for the quality and productivity of work

This cursory analysis suggests:

- research interests within ASEAN are still primarily in the traditional areas of agricultural ergonomics, work physiology and manual materials handling, although there is a growing emphasis on impact of new technologies in the work environment in particular studies on human-computer interfaces.
- there is increased participation from young scientists and students from the ASEAN region implying an emerging trend among the new generation to pursue ergonomics as a career.

Some of the world's best ergonomists and human factors experts participated in the meeting, which shows the importance placed on ergonomics in industrially developing countries (IDC). More papers should provide a broad understanding of ergonomics (from theory to application) but the poor participation from the industry (28% of ASEAN participants) brings to fore the nagging issue: ASEAN ergonomics seems to be confined to academia. How can it reach the practitioners that directly determine the fate of users in product, task and environmental design? These questions will continue to beg unless ergonomics is top-driven by the government and receives the political will it so desires, as in the case of multimedia development in Malaysia through the personal intervention of the leadership.

To conclude, undoubtedly, ASEAN ergonomics is at a crossroad– while it should steer forward in new directions in light of technological developments, the current economic downturn may not encourage innovations in research. Chances are research will remain confined to traditional areas of ergonomics, such as studies in manual materials handling and worker productivity. This is partly due to increase emphasis on agricultural and manufacturing (which improve the balance of trade); and partly due to decrease funding of research. Therefore, studies on worker productivity will become increasingly important, including quality of work and human-machine interactions, as they do not necessarily require a high financial investment.

ICCE97

International Conference on Computers in Education

2-6 December 1997 Kuching, Sarawak

UNIMAS was the sole institution in the Asian-Pacific region to be given the mandate and honour of co-organizing the fifth biennial ICCE conference with the Asia-Pacific Chapter of the Association for the Advancement of Computers in Education (AACE) last December at the Kuching Hilton.

It is the aim of the ICCE conference to:

- Showcase computers/IT in education research in the Asia-Pacific region while fostering the exchange of ideas and re search results with researchers worldwide
- Convene researchers from diverse areas of advanced educational technology in order to address broader current research issues
- Serve as a catalyst for promoting IT in education and educational research

The 224 local and international participants were all contributors to the success and importance of ICCE97. They further attest to the need for a rendezvous where exchange of ideas, research results and experiences in advancing education through information technology can be facilitated.

ICCE97 has drawn the largest number of contributed papers from over 30 countries. Over 240 papers of high quality research were submitted in total, of which 92 were selected for full presentation and another 28 for poster presentations and 16 for examples-in-practice. From this number, over 12 papers were nominated for the Best Paper award, of which 8 were selected.

Papers for ICCE97 were solicited and categorised into four tracks: (T1) Teaching-Learning Strategies and Environments, (T2) Technology and Innovative Applications, (T3) Education Reform and Support, and (T4) Social and Cultural Issues. The selection of the tracks reiterates the need to improve the quality of education by (re-) developing sound approaches to teaching and learning, use appropriate technologies to support them, have the political will to institute changes where necessary, and remain fully cognizant of social and cultural constraints and implications. These papers have hopefully generated the interest and development in these equally important facets of computers/IT in education.

Virtual Reality Seminar & Workshop 1998

14-15 April 1998
The Mines Exhibition Centre, Seri Kembangan, Selangor Darul Ehsan

The three-day seminar and workshop was designed to accommodate in depth discussions of major technological developments in current trends and issues in virtual reality technology and its applications. The seminar was jointly organised by the Institute of Design and Ergonomics Application and the Fraunhofer Institute of Industrial Engineering IAO of Germany, Silicon Graphics Pte Ltd, SIRIM Berhad, Petronas and Sime Darby Systems Sdn. Bhd. Officiated by the Honourable Prime Minister, and closed by Dato Seri Rafidah Aziz, the Minister of International Trade and Industry, the seminar won full support from both ministers and scored a big hit with the local news.

The 90 participants who attended the seminar included technology developers, practitioners, researchers and academicians. 18 paper presentations, 12 exhibits showcasing VR select tools and applications, and one project workgroup comprised part of the seminar. Research presented ranged from current trends and applied issues as well as problems in various VR applications and tools in education, entertainment, product design, architecture, manufacturing to process plant, engineering and vehicle design.

The seminar stressed on virtual reality technology as a tool to promote human performance, besides focusing on hardware and software systems and initial demonstration projects. Further needs for more realistic and user-oriented virtual reality tools to reduce human factor conundrum faced by VR users were also espoused. It was concluded that successful VR implementation in Malaysia, should address the following issues:

- Training of VR programmers and users
- Financing of VR equipment, especially high-end systems
- Cost-effectiveness of VR application
- Intelligent VR interfaces
- Usability of VR systems
- The need for public awareness in the use of VR technology.

Latest in IT

Building the Blocks for the Virtual Campus

Narayanan Kulathuramaiyer

The Faculty of Information Technology (FIT) has taken a bold step in conceptualizing a virtual campus project for the university. Although the project is still at its infancy, the virtual campus team has conducted serious research and development initiatives to construct a solid basis for the virtual learning environment. It is based on a second-generation information server that solves many problems associated with electronic publishing on the existing popular Internet and Intranets by combining powerful search/navigation tools with remote authoring, better link management, full-text indexing and security. Development of the user interface will converge on creating visual models and using standardized templates for all course materials that will significantly impact the learning process.

Undergraduate course materials are now available on the Intranet, and thus have given students open access to lecture/tutorial/laboratory notes. Synchronous electronic discussion groups are set up as a move to facilitate active scholarly pursuits over the network. The benefits reaped from the development of such technology-enabled tools include increased instructor-student interactivity, affordability, audio-video connectivity as well as the capability for sharing various computer applications and electronic boards. On-line assessments and course appraisal add to the list of the many support tools created for the virtual learning environment. More innovative web-based course materials have been drawn up especially for skills-based courses with large student enrolments. Currently, the development of various state-of-the-art technologies is being integrated to enable a single platform for distance course delivery. This is especially useful to increase accessibility for our postgraduate students based in the corporate world.

Investigation of culturally sensitive interaction issues in order to cater to the university's thriving multiracial community is also carried out. Such a move is hoped to yield more information regarding the social development and technological impact on learners in the virtual campus.

In a university where the business of academia is of prime interest, a sound pedagogy is viewed essential to engage learners in such a virtual learning environment where physical contact is not possible. Currently, a dedicated team is assigned to work on the pedagogical improvements for online courses. For instance, a new science of the mind, Constructivism, and Problem-based teaching-learning approaches are incorporated into the planning of the virtual campus. With these foundations in place, the virtual campus project is targeted to be the tool to successfully expand the scope of available online courses, revolutionize the teaching-learning process, allow the smooth management and conduct of administrative duties, as well as cater to the needs of different students based at their homes, workplaces or in the physical campus.

Pusat Khidmat Maklumat Akademik
UNIVERSITI MALAYSIA SARAWAK

Pertemuan

The East Meets West

Nur Afifah Vanita Abdullah

UNIMASTAGE once again successfully produced a play PERTEMUAN under the auspices of the Faculty of Applied and Creative Arts' Drama and Theatre Programme. Aimed at enhancing and advancing appreciation for the theatre in Sarawak, PERTEMUAN is a make-up of usurps from three novels; "Salina" (an adaptation from A. Samad Said's novel "Salina"), "Lantai T. Pinkie" (another literary piece written by A. Samad Said) and an adaptation of a Swedish play entitled "The Stronger" by August Strindberg. Its premier show opened on the 17th and 19th of December 1997 at UNIMAS' Experimental Theatre.

Manifolds of meaning are entwined in PERTEMUAN ("meeting" in English). This play is a combination of the works of two prolific local (Eastern) and international (Western) playwrights- A. Samad Said and August Strindberg. Deriving from two different centuries- "The Stronger", from late nineteenth century, and "Lantai T. Pinkie", from the twentieth, the setting of the play takes place in an old-fashioned coffee shop. It is at this venue that all characters finally convene. PERTEMUAN also represents the meeting between the staging of the play and the audience.

Set during the pre-independence time in Singapore, PERTEMUAN is a story about women, their strengths and weaknesses, the challenges they faced and their undertaking of those challenges. The production consists of lecturers from the Drama and Theatre Programme (Hamzah Tahir and Nur Afifah Vanitha Abdullah) and two final year drama majors (Taharah Ahmad and Dayang Kartini). This Malay-English piece was also directed and scenographed by Hamzah Tahir.

PERTEMUAN was well received on its opening night in December. It later became the highlight of The Theatre Production Workshop project, held in Miri, Sibu and Kuching in Sarawak. The Sarawak Ministry of Social Development, the Cultural and Arts Office of Sarawak, Dewan Bahasa and Pustaka, The British Council, Utusan Sarawak and Radio Television Malaysia jointly sponsored the project. The play is now being taken across the South China Sea to meet with audience in Kuala Lumpur and Penang in May. This will be UNIMASTAGE's second outreach programme to audience in West Malaysia.

PEMBERONTAKAN

The Spark of 35 Years of Independence

Zakaria Hassan

The Theatre majors in UNIMAS' Faculty of Applied and Creative Arts have been kept busy with their first student production PEMBERONTAKAN, a performance made possible in collaboration with the Theatre House Entertainment (THE), a local production house. The artistic literature by Jong Chian Lai, a Sarawakian novelist, inspired the transformation of the text into a performing art piece. Interpretations perceived from the original text brought on challenging processes of literary understanding and adaptation.

Zakaria Hassan, a lecturer in Drama and Theatre at the faculty, successfully shouldered the pivotal role of directing and heading the artistic division of the play. Three of his students, Suhaimi Suhaili, Donna Juleng Lee and Floreda Puntang Mawi, took this challenge in theatre production to fulfil their industrial training credit requirement. For the team, it was an enriching exposure to the plethora of issues in stage management — from drafting scripts, sourcing for funds, to finally managing and producing the play for the entertainment of the Sarawakian audience.

PEMBERONTAKAN encapsulates the essence of early historical imperialism in Sarawak. Characters and settings in the play brought to life the colonial days of Sarawak. It is a historic reflection of the vigorous spirit of men who fought in defense and independence for their land. To the producers and actors, the stage became a rich artistic endeavor to comprehend theatrical techniques that best define and project the spirit of the men and their wars from the past.

The play was performed on the 15th and 16th of May at the Auditorium Tun Ahmad Zaidi Adruce in the Batu Lintang Teachers College. Its production was also aptly chosen in conjunction with Sarawak's celebration of 35 years of independence in Malaysia. Kudos to the theatre production, and the UNIMAS students and staff involved in the play! Hopefully we will see more of their creative effort in years to come.

Staff News Updates

We Welcome

Faculty of Economics and Business

Asleena bt Helmi
Chiang Lee Huei
Jamal Abd Nassir Shaari
Rabaah bt Tudin
R. Mazhatul Yasmin Suraya

Faculty of Cognitive Sciences and Human Development

Surena bt Sabil
Abdul Halim b Busari

Faculty of Medicine and Health Sciences

Dr Amol Sharad Dharap
Dr Awi ak Idi
Elicebat Pasang Labong
Zabidah bt Putit

Faculty of Information Technology

Rafidah bt Abdul Rashid

Faculty of Social Sciences

Kelvin Egay John
Mohd Faisal Sham Abd Hazis
Nur Naquiyah Ong Abdullah
Kamsiah Ali
Suseela Devi Chandran

Centre for Language and Communication Studies

Hj Roslan bin Ali

Institute of Design and Ergonomics Application

Yusman bin Kamaleri

We congratulate

Prof Wan Zawawi Ibrahim

on his appointment as Dean,
Faculty of Applied and Creative Arts

Assoc Prof Dr Bujang Kim Huat

on his appointment as Dean,
Faculty of Engineering

Assoc Prof Dr Khairuddin Ab Hamid

on his appointment as Dean,
Faculty of Information Technology

An Accolade to ...

Professor Dato' Zawawi Ismail, the Vice-Chancellor,

on being commisioned as the Honorary Colonel in the Army Volunteer Corps on 1 February 1998

We congratulate and welcome the successful return of the following lecturers from their postgraduate studies overseas:

Ahmad Nizar Yaacob
Angela Anthonysamy
Annuar Rapaee
Ashley Edward Roy Soosay
Awang Ismail Awang Mahmood
Chang Chin Thon
Chang Kam Hock
Chen Chwen Jen
Fa'aizah Shahbodin
Faizah Mas'ud
Fitri Suraya Mohamad
Florence Gilliam Kayad
Gregory Wee Lik Hoo
Hamzah Mohd. Tahir
Hasnizam Abdul Wahid
Inson Din
Jane Buncuan
Jane Labadin
June Ngo Siok Kheng
Khoo Guat Lien
Kong Siew Lang
Leniiw Roman
Mahanita Mahadhir
Mai Sumiyati Ishak
Mohd Hafiz Askiak
Mohd Razali Othman
Muna Sabri
Nazlina Shaari
Nor Aza Ahmad
Nor Ain Aini
Nor Ba'yah Abdul Kadir
Nur Afifah Abdullah
Norazuna Norahim
Norazila Abdul Aziz
Ramlah Zainuddin
Rashidah Abd. Salam
Sabasiah Husin
Shabdin Mohd Long
Shamsul Mohamad
Shanui Shabas
Sharkawi Che Din
Shazlina Walad
Siti Fairouz Ibrahim
Teh Chee Siong
Victor Chee Kuan Ming
Wan Jamarul Imran
Zaiton Hassan

We bid farewell to...

Prof Zaidah Razak
Prof Zahran Halim
Assoc Prof Dr A.V.S.N. Murthy
Dr Aderemi Isola Ajibewa
Dr Melissa Johansson
Tuan Hj Mohamad Said Bono
Mohd Abul Basher
Judith Ann Warren
Pauline Bunce

Congratulations

to the following staff members who have completed all six modules of the Staff Development Programme

Zaiton Ali
Dr Kombara Maheendran
Dr George Okaonu Tasit

CONFERENCE & SEMINAR ANNOUNCEMENT

- **Conference on Cognitive Science & Inauguration of the Cognitive Science Society of Malaysia(COSMA)**

  28-29 September 1998
  The Mines Beach Resort, Seri Kembangan, Selangor

  This conference is unique as it will be the first of its kind in Malaysia to provide a platform to discuss various issues pertaining to the operation of human mind and its applications.

  Further information
  E-mail: csc98@unimas.my
  Online Information : http://www.unimas.my
  Fax: ++ 6 082 672411

- **Conference on Low and Low-Medium Cost Housing Development**

  9-10 Julai 1998
  Kuching Hilton International, Kuching

  Further information
  E-mail: sap@feng.unimas.my
  Fax: ++ 6 082 672411